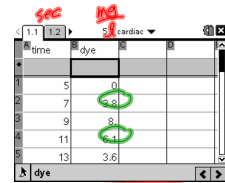


5.1b Estimating With Finite Sums

Ex 4 cardiac output p 268, margin

cardiac output = mg dye / area under curve



time	dye
5	0
7	3.8
9	6.1
11	2.3
13	0.91
15	0.36
17	0.14
19	0

(RRAM leave off first y)
$$[\text{sum}(\text{dye}) - 0] \cdot \Delta x$$
$$= 55.1 \frac{\text{mg} \cdot \text{sec}}{\ell}$$

(LRAM leave off last y)
$$[\text{sum}(\text{dye}) - 0] \cdot \Delta x = 55.1 \frac{\text{mg} \cdot \text{sec}}{\ell}$$

(MRAM - use every twice as wide other y)

$$[3.8 + 6.1 + 2.3 + .91 + .36 + .14 + 0] \cdot 2$$

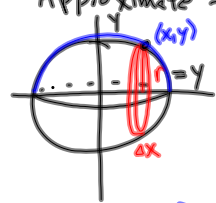
$$54.44 \frac{\text{mg} \cdot \text{sec}}{\ell}$$

5.6 mg of dye injected


$$\frac{5.6 \text{ mg}}{55.1 \frac{\text{mg} \cdot \text{sec}}{\ell}} = .102 \frac{\ell}{\text{sec}} \frac{60 \text{ sec}}{\text{min}}$$
$$= 6.1 \frac{\ell}{\text{min}}$$

Nov 8-9:59 PM

p 267
Approximate the volume of a sphere $r=4$
add slices



$\Delta v = \pi r^2 \Delta x = \pi y^2 \Delta x$
(1 slice)
 $\Delta v = \pi (16 - x^2) \Delta x$
 $y = \pi (16 - x^2)$
 $x^2 + y^2 = 4^2$
 $y^2 = 16 - x^2$



define $f(x) = \pi (16 - x^2)$
 $\text{ram}(-4, 4, 100)$
268.056

sphere: $\frac{4}{3} \pi 4^3 = 268.083$

Nov 3-8:58 AM